

REMARKS

Entry of the foregoing, re-examination and reconsideration of the subject matter identified in caption, as amended, pursuant to and consistent with 37 C.F.R. § 1.111, and in light of the remarks which follow, are respectfully requested.

Claim 1 has been amended to recite that the olefin-based polymer having the earliest induction period of strain-induced crystallization is contained in an amount of 1 to 20 wt% of the fiber. This amendment is supported by the specification, for example, at pages 36-38 (Tables 2-4). Claims 2, 3 and 8-15 were previously canceled. Upon entry of the Amendment, claims 1 and 4-7 will be all the claims pending in the application.

I. Response to Rejection under 35 U.S.C. § 103

Claims 1 and 4-7 have been rejected under 35 U.S.C. § 103(a) as allegedly obvious over U.S. Patent No. 6,156,679 to Takaoka et al. Applicants respectfully submit that the claims as amended are patentable over Takaoka et al. for at least the following reasons.

Independent claim 1 recites an extensible nonwoven fabric which is a spunbonded nonwoven fabric that comprises a fiber having substantially no crimps and comprising at least two olefin-based polymers, said at least two olefin-based polymers being of the same kind and having a difference between induction periods of strain-induced crystallization, as measured at the same temperature and the same shear strain rate, of 100 seconds or longer,

wherein among the at least two olefin polymers constituting the fiber, the olefin-based polymer having the earliest induction period of strain-induced crystallization is contained in an amount of 1 to 20 wt% of the fiber, and

wherein the fiber is a conjugate fiber having a concentric sheath-core configuration, in which the core resin has the earliest induction period of strain-induced crystallization.

Takaoka et al. relates to a heat-fusible composite fiber comprising a sheath component of a crystalline propylene copolymer resin having a low melting point and a core component of a crystalline propylene resin having a higher melting point. Takaoka et al. discloses a nonwoven fabric using the above-mentioned heat-fusible composite fiber in the short form.

On the contrary, the nonwoven fabric recited in present claim 1 relates to a spunbonded nonwoven fabric, in which the fiber is used in a long form. In this regard, the present specification describes from page 18, line 7 through page 19, line 2, that in the process of producing spunbonded nonwoven fabric, fibers are used in a long form.

Therefore, the nonwoven fabric recited in present claim 1 is different from that disclosed in Takaoka et al.

Generally speaking, as described at from column 4, line 60 to column 5, line 11 of Takaoka et al., when a bonding strength at a fiber bonding point of a nonwoven fabric is strong, the physical property of the nonwoven fabric depends on the physical property of the fiber, and when the bonding strength is weak, the physical property of the nonwoven fabric depends on the fiber bonding strength.

Further, that the fiber and the nonwoven fabric having high strength indicates that they have excellent elongation. Strength of the fiber depends on fiber bonding strength since fiber strength is generally higher than bonding strength at the fiber bonding point.

Takaoka et al. describes that the fiber bonding strength is reinforced, and the strength at fiber bonding point is improved to a level higher than the fiber strength. Therefore, the strength of the resultant nonwoven fabric prepared with short fibers may be fiber strength

dependent. Even so, generally speaking, the strength of the nonwoven fabric is far more excellent when the fibers are used in a long form.

The Office Action asserts that the nonwoven fabric using composite fiber disclosed in Takaoka et al. is the same as the fiber used for the nonwoven fabric of the presently claimed invention. Applicants respectfully disagree. As explained above, the nonwoven fabric disclosed in Takaoka et al. is different in that not only is the nonwoven fabric prepared with short fibers but also the strength of the fiber itself is different.

Moreover, in the nonwoven fabric recited in present claim 1, the weight ratio of core part to the sum of core and sheath parts is 1 to 20%.

Applicants submit herewith a Declaration under 37 C.F.R. § 1.132 by Mr. Kenichi Suzuki, a co-inventor of the present application. The Declaration demonstrates the unexpectedly superior results achievable in the presently claimed invention and thereby further supports the patentability of the presently claimed invention.

In the Declaration, fiber elongation of the fibers obtained in Example 1 described in the present specification and Examples 1 to 5 described in Takaoka et al. was measured in accordance with the manner described in column 6, lines 38-65 of Takaoka et al. The results are reproduced below:

Method of Fiber Preparation		Conjugate fiber			Elongation at maximum load %
		Weight ratio (Core/sheath)	Core	Sheath	
Present Experiment	Example 1 of the present application	10/90	Homo pp	Homo pp	566
Data of Takaoka et al. from Table 1 (US 6,156,679)	Example 1	60/40	Homo pp	Propylene copolymer with ethylene and buten-1	285
	Example 2	60/40	Homo pp	Propylene copolymer with ethylene and buten-1	225
	Example 3	50/50	Homo pp	Propylene copolymer with ethylene and buten-1	210
	Example 4	60/40	Homo pp	Propylene copolymer with ethylene	205
	Example 5	70/30	Homo pp	Propylene copolymer with ethylene	220

As the data in the above table show, elongation of the fiber in accordance with the presently claimed invention is extremely larger than that of the fibers described in Takaoka et al.

Takaoka et al. does not disclose a spunbonded nonwoven fabric using the fibers of the presently claimed invention in a long form, or a fiber having a high elongation as the conjugate fiber of the presently claimed invention.

Moreover, Takaoka et al. is silent on the effects including excellent elongation in addition to fuzz resistance, which can be achieved by the extensible spunbonded nonwoven fabric recited in present claim 1.

In view of the foregoing, Applicants respectfully submit that claim 1 is not obvious over Takaoka et al. and thus the rejection should be withdrawn. Additionally, claims 4-7 depend from claim 1 and thus are patentable over the cited reference at least by virtue of their dependency.


II. Conclusion

From the foregoing, further and favorable action in the form of a Notice of Allowance is believed to be next in order and such action is earnestly solicited. If there are any questions concerning this paper or the application in general, the Examiner is invited to telephone the undersigned at (202) 452-7932 at his earliest convenience.

Respectfully submitted,

BUCHANAN INGERSOLL & ROONEY PC

Date: November 3, 2008

By: 
Fang Liu, Ph.D.
Registration No. 51283